

Art Unit 3729
Serial No.10/656,311

Reply to Office Action of: June 3, 2005
Attorney Docket No.: RDRT1027-2(K35R1673.D1)

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-12 (previously cancelled).

Claim 13 (currently amended): A method for constructing an inductive write structure for use in a magnetic data recording system, comprising:

forming a first magnetic pole of a magnetic material;

depositing a first insulation layer;

depositing a layer of dielectric write gap material;

forming an electrically conductive coil;

depositing a second insulation layer;

curing said second insulation layer;

forming a thin layer of high magnetic moment material, by sputter depositing a lamina of FeXN, X being selected from the group of materials consisting of Rh, Ta, Al, Ti, and Zr, and sputter depositing a lamina of a cobalt based ferromagnetic amorphous alloy;

masking the thin layer of high magnetic moment material in a pattern corresponding to a second pole;

plating a magnetic material in the pattern of said second pole; and

performing a first ion milling process, to remove at least a portion of the sputtered, high magnetic moment material not covered by the plated second pole; and after forming the first magnetic pole:

forming a layer of a high magnetic moment material onto said first pole;

masking the high magnetic moment material formed onto the first pole in a pattern corresponding to a pedestal to be formed on an end of the first pole; and

etching to remove said sputter deposited high magnetic moment material

Art Unit 3729
Serial No.10/656,311

Reply to Office Action of: June 3, 2005
Attorney Docket No.: RDRT1027-2(K35R1673.D1)

not covered by said mask to form said pedestal;

wherein forming the thin layer of high magnetic moment material comprises depositing at least one lamina of a high magnetic moment material and at least one lamina of a non-magnetic, dielectric material.

Claim 14 (canceled)

Claim 15 (currently amended): The method of claim [[14]] 13, further comprising:
depositing a mask on said plated magnetic material forming said second pole, said mask being disposed at an end of said second pole;
performing a second ion milling process to remove a portion of said second pole at said end;
performing a reactive ion etching process to remove a portion of said dielectric write gap material layer; and
performing a third ion milling process to remove a material from said pedestal.

Claim 16 (currently amended): The method of claim [[14]] 13, further comprising,
following depositing the first insulation layer, polishing said first insulation layer using a chemical mechanical polishing process.

Claim 17 (previously canceled)

Claim 18 (previously canceled)

Claim 19 (previously presented): The method of claim 13 wherein depositing the cobalt based ferromagnetic amorphous alloy comprises depositing $\text{Co}_{90}\text{Zr}_9\text{Cr}$.

Claim 20 (previously canceled)

Art Unit 3729
Serial No.10/656,311

Reply to Office Action of: June 3, 2005
Attorney Docket No.: RDRT1027-2(K35R1673.D1)

Claim 21 (previously presented): The method of claim 13 wherein depositing FeXN comprises depositing Rh.

Claim 22 (previously presented): The method of claim 13 wherein depositing FeXN comprises depositing Ta.

Claim 23 (previously presented): The method of claim 13 wherein depositing FeXN comprises depositing Al.

Claim 24 (previously presented): The method of claim 13 wherein depositing FeXN comprises depositing Ti.

Claim 25 (previously presented): The method of claim 13 wherein depositing FeXN comprises depositing Zr.

Claim 26 (previously presented): The method of claim 13 wherein plating the second pole magnetic material comprises plating a Ni-Fe alloy.

Claim 27 (previously presented): The method of claim 13 wherein plating the second pole magnetic material comprises plating to a material thickness about 2um.

Claim 28 (previously canceled)

Claim 29 (previously canceled)

Claim 30 (previously canceled)

Claim 31 (currently amended): The method of claim [[14]] 13 wherein forming the thin layer of high magnetic moment material comprises sputter depositing Rh.

Art Unit 3729
Serial No.10/656,311

Reply to Office Action of: June 3, 2005
Attorney Docket No.: RDRT1027-2(K35R1673.D1)

Claim 32 (currently amended): The method of claim ~~[[14]]~~ 13 wherein forming the thin layer of high magnetic moment material comprises sputter depositing Ta.

Claim 33 (currently amended): The method of claim ~~[[14]]~~ 13 wherein forming the thin layer of high magnetic moment material comprises sputter depositing Al.

Claim 34 (currently amended): The method of claim ~~[[14]]~~ 13 wherein forming the thin layer of high magnetic moment material comprises sputter depositing Ti.

Claim 35 (currently amended): The method of claim ~~[[14]]~~ 13 wherein forming the thin layer of high magnetic moment material comprises sputter depositing Zr.

Claim 36 (canceled).

Claim 37 (currently amended): The method of claim ~~[[14]]~~ 13 wherein ~~forming the thin layer of high magnetic moment material~~ the at least one lamina of a high magnetic moment material comprises depositing at least one lamina of FeXN, wherein X is selected from the group of materials consisting of Rh, Ta, Al, Ti and Zr, ~~and at least one lamina of a non-magnetic, dielectric material.~~

Claim 38 (currently amended): The method of claim ~~[[14]]~~ 13 wherein forming the thin layer of high magnetic moment material comprises depositing at least one lamina of a high magnetic moment material and at least one lamina of a cobalt based amorphous ferromagnetic alloy.

Claim 39 (currently amended): The method of claim ~~[[14]]~~ 13 wherein forming the thin layer of high magnetic moment material comprises depositing at least one lamina of a high magnetic moment material and at least one lamina of Co₉₀Zr₉Cr.

Claim 40 (currently amended): The method of claim ~~[[14]]~~ 13 wherein forming the high

Art Unit 3729
Serial No.10/656,311

Reply to Office Action of: June 3, 2005
Attorney Docket No.: RDRT1027-2(K35R1673.D1)

magnetic moment material onto the first pole comprises sputter depositing FeXN, X being selected from the group of materials consisting of Rh, Ta, Al, Ti, and Zr.

Claim 41 (previously presented): The method of claim 40 wherein forming the high magnetic moment material onto the first pole comprises sputter depositing a lamina of FeXN, and further comprises depositing a lamina of a cobalt based ferromagnetic amorphous alloy.

Claim 42 (previously presented): The method of claim 40 wherein forming the high magnetic moment material onto the first pole further comprises depositing a lamina of $\text{Co}_{90}\text{Zr}_9\text{Cr}$.

Claim 43 (previously presented): The method of claim 40 wherein forming the high magnetic moment material onto the first pole comprises depositing Rh.

Claim 44 (previously presented): The method of claim 40 wherein forming the high magnetic moment material onto the first pole comprises depositing Ta.

Claim 45 (previously presented): The method of claim 40 wherein forming the high magnetic moment material onto the first pole comprises depositing Al.

Claim 46 (previously presented): The method of claim 40 wherein forming the high magnetic moment material onto the first pole comprises depositing Ti.

Claim 47 (previously presented): The method of claim 40 wherein forming the high magnetic moment material onto the first pole comprises depositing Zr.

Claims 48.-51. (canceled)

Art Unit 3729
Serial No.10/656,311

Reply to Office Action of: June 3, 2005
Attorney Docket No.: RDRT1027-2(K35R1673.D1)

Claim 52 (previously presented): The method of claim 13, further comprising:

depositing a mask on said plated magnetic material forming said second pole,
said mask being disposed at an end of said second pole;

performing a second ion milling process to remove a portion of said second pole
at said end;

performing a reactive ion etching process to remove a portion of said dielectric
write gap material layer; and

performing a third ion milling process to remove a material from said pedestal.

Claim 53 (previously presented): The method of claim 13, further comprising, following
depositing the first insulation layer, polishing said first insulation layer using a chemical
mechanical polishing process.

Claim 54 (new) A method for constructing an inductive write structure for use in a
magnetic data recording system, comprising:

forming a first magnetic pole of a magnetic material;

depositing a first insulation layer;

depositing a layer of dielectric write gap material;

forming an electrically conductive coil;

depositing a second insulation layer;

curing said second insulation layer;

forming a thin layer of high magnetic moment material, by sputter depositing a
lamina of FeXN, X being selected from the group of materials consisting of Rh, Ta, Al,
Ti, and Zr, and sputter depositing a lamina of a cobalt based ferromagnetic amorphous
alloy;

masking the thin layer of high magnetic moment material in a pattern
corresponding to a second pole;

plating a magnetic material in the pattern of said second pole; and

performing a first ion milling process, to remove at least a portion of the
sputtered, high magnetic moment material not covered by the plated second pole;

Art Unit 3729
Serial No.10/656,311

Reply to Office Action of: June 3, 2005
Attorney Docket No.: RDRT1027-2(K35R1673.D1)

after forming the first magnetic pole:
forming a layer of a high magnetic moment material onto said first pole;
masking the high magnetic moment material formed onto the first pole in a pattern corresponding to a pedestal to be formed on an end of the first pole; and
etching to remove said sputter deposited high magnetic moment material not covered by said mask to form said pedestal;
depositing a mask on said plated magnetic material forming said second pole, said mask being disposed at an end of said second pole;
performing a second ion milling process to remove a portion of said second pole at said end;
performing a reactive ion etching process to remove a portion of said dielectric write gap material layer; and
performing a third ion milling process to remove a material from said pedestal